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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,856	02/27/2002	Jeffrey Peter Allen		4608

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EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 03/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/083,856

Applicant(s)

ALLEN ET AL.

Examiner

Dah-Wei D. Yuan

Art Unit

1745

AS

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 05292003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Art Unit: 1745

**AQUEOUS BASED ELECTROLYTE SLURRY FOR MCFC AND METHOD OF USE**

Examiner: Yuan

S.N. 10/083,856

Art Unit: 1745

March 2, 2004

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1,4 are rejected under 35 U.S.C. 102(b) as being anticipated by Bregoli et al. (US 5,468,573).

Bregoli et al. teach a method for providing electrolyte to a molten carbonate fuel cell in which electrolyte matrix (1) and electrolyte reservoir plate (6) (bipolar plate) are filled with electrolyte by applying a paste of dry electrolyte powder entrained in a dissipatable carrier (glycerin) to the reactant flow channels in the current collector plate. The dry carbonate particles are incorporated into a carrier vehicle that will vaporize or chemically decompose as the stack is heated up to operating temperatures to melt the carbonate particles. The mixture has a pasty consistency which can be forced into the current collector flow field grooves of a preformed metal plate and will adhere to the current collector and anode plates as the stack is assembled. Packing the reactant flow channels with the electrolyte pate allows the use of thinner electrode plates, particularly on the anode side of the cells. See Abstract, Column 2, Lines 3-14; Column 3, Lines 4-26; Figure 1.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bregoli et al. (US 5,468,573).

The disclosure of Bregoli et al. differs from Applicant's claims in that Bregoli et al. disclose the amount of the carrier vehicle in the slurry is about 30%. See Column 2, Lines 20-25. However, it is recognized in the art that the flow characteristics and viscosity of the slurry is determined by the amount of the carrier vehicle in the slurry. Therefore, it would have been within the skill of the ordinary artisan to adjust the amount of the carrier vehicle in the slurry to about 27% in order to optimize the flow property of the electrolyte slurry. *Discovery of optimum value of result effective variable in known process is ordinarily within skill of art. In re Boesch*, CCPA 1980, 617 F.2d 272, 205 USPQ215.

5. Claims 3,5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bregoli et al. (US 5,468,573) as applied to claims 1,4 above, and further in view of Okabe et al. (JP 57-80675).

Bregoli et al. disclose a method of preparing the electrolyte for a molten carbonate fuel cell as described above in Paragraph 2. However, Bregoli et al. do not disclose the use of water as the carrier vehicle. Okabe et al. teach the preparation of an electrolyte with excellent

supporting capacity and high mechanical strength for use in a molten carbonate fuel cell. The lithium carbonate, potassium carbonate and water is mixed by using a grinding machine before molding. See abstract. Therefore, it would have been obvious to one of ordinary skill in the art to use water as the carrier vehicle in the preparation of electrolyte slurry on the molten carbonate fuel cell of Bregoli et al., because Okabe et al. teach the use of a carbonate/water mixture to achieve desired capacity and mechanical strength in the resulting electrolyte.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan  
March 2, 2004

